

WHAT IS CLAIMED IS:

1. A non-toxic biodegradable plant protein composite, said composite comprising: 5 to 90 parts soy protein; and 90 to 5 parts of a polylactide.

2. The plant protein composite of claim 1 wherein the composite includes at least 25% by weight of the polylactide.

3. The plant protein composite of claim 1 wherein the composite includes at least 50% by weight of the polylactide.

4. The plant protein composite of claim 1 further including a compatibilizer, said compatibilizer being selected from the group consisting of a poly(2-alkyl-2-oxazoline), a poly(2-phenyl-2-oxazoline), and an epoxy/hydroxyl functionalized polybutadiene.

5. The plant protein composite of claim 4 wherein the poly(2-alkyl-2-oxazoline) is selected from the group consisting of poly(2-methyl-2-oxazoline), poly(2-ethyl-2-oxazoline), and poly(2-propionyl-2-oxazoline).

6. The plant protein composite of claim 5 wherein the poly(2-alkyl-2-oxazoline) is poly(2-ethyl-2-oxazoline).

7. The plant protein composite of claim 4 wherein the composite contains 2 parts by weight compatibilizer.

8. The plant protein composite of claim 1 wherein the plant protein is acetylated.

9. The plant protein composite of claim 1 further including a cross-linking agent.

10. The plant protein composite of claim 8 wherein the cross-linking agent is selected from the group consisting of glutaric dialdehyde, epichlorohydrin, formaldehyde, glyoxal, adipic/acetic anhydride, zinc sulfate, and calcium chloride.

11. The plant protein composite of claim 10 wherein the cross-linking agent is glutaric dialdehyde or epichlorohydrin.

12. The plant protein composite of claim 9 which includes from about 0-0.6 parts glutaric dialdehyde.

13. The plant protein composite of claim 9 which includes from about 0-0.4 parts epichlorohydrin.

14. The plant protein composite of claim 1 which further includes a plasticizer, said plasticizer being selected from the group consisting of 0-50% by weight glycerol and 0-30% by weight propylene glycol.

15. The plant protein composite of claim 14 which includes 10-30% by weight glycerol.

16. The plant protein composite of claim 14 which includes 10-20% by weight propylene glycol.

17. A method for making a biodegradable plant protein composite comprising:
combining plant protein with a polylactide to form a mixture; and extruding said mixture at a temperature sufficient to make the mixture extrudable.

18. The method of claim 17 wherein the plant protein is soy protein.

19. The method of claim 17 comprising combining 5 to 90 parts plant protein with 90 to 5 parts polylactide.

5 20. The method of claim 17 further comprising adding a compatibilizer to the mixture.

21. The method of claim 17 further comprising adding a cross-linking agent to the mixture.

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22. The method of claim 17 further comprising adding a plasticizer to the mixture.

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23. A non-toxic biodegradable plant protein composite comprising: soy protein; at least 25% by weight of a polylactide; a compatibilizer, said compatibilizer being selected from the group consisting of a poly(2-alkyl-2-oxazoline) and a poly(2-phenyl-2-oxazoline); a cross-linking agent, said cross-linking agent being selected from the group consisting of glutaric dialdehyde and epichlorohydrin; and a plasticizer, said plasticizer being selected from the group consisting of glycerol and propylene glycol.

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